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INTERNATIONAL PRELIMINARY EXAMINATION REPORT  
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 101927/10	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/CA 03/01849	International filing date (day/month/year) 28.11.2003	Priority date (day/month/year) 29.11.2002
International Patent Classification (IPC) or both national classification and IPC C12P7/02		
Applicant MCN BIOPRODUCTS INC. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.  
  
☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).  
  
 These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:
  - I ☒ Basis of the opinion
  - II ☐ Priority
  - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
  - IV ☐ Lack of unity of invention
  - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
  - VI ☐ Certain documents cited
  - VII ☐ Certain defects in the international application
  - VIII ☐ Certain observations on the international application

Date of submission of the demand  17.06.2004	Date of completion of this report  22.11.2004
Name and mailing address of the international preliminary examining authority:   European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer  Douschan, K  Telephone No. +49 89 2399-8702  

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. **PCT/CA 03/01849**

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

1-6 as originally filed

**Claims, Numbers**

1-11 as originally filed

**Drawings, Sheets**

1/1 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).  
☐ the language of publication of the international application (under Rule 48.3(b)).  
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority in written form.  
☐ furnished subsequently to this Authority in computer readable form.  
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.  
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:  
☐ the claims, Nos.:  
☐ the drawings, sheets:

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. **PCT/CA 03/01849**

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	1-11
	No: Claims	
Inventive step (IS)	Yes: Claims	1-11
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-11
	No: Claims	

2. Citations and explanations

**see separate sheet**

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/CA 03/01849

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

- 1). The documents mentioned in the International search report are cited by the following abbreviations:

- D1: US-A-6 156 563 (KAMPEN WILLEM H) 5 December 2000 (2000-12-05)  
D2: PATENT ABSTRACTS OF JAPAN vol. 0172, no. 36 (C-1057), 13 May 1993 (1993-05-13) -& JP 04 365489 A (MITSUI TOATSU CHEM INC), 17 December 1992 (1992-12-17)  
D3: KAUFMAN H. W. AND KLEINBERG I.: "Hydrolysis of Phytate and its Inositol Phosphate Intermediates by an Acid and an Alkaline Phosphatase." ARCHS ORAL BIOL., vol. 20, 1975, pages 157-160, XP000902746  
D4: LIM P E ET AL: "THE PHYTASES II. PROPERTIES OF PHYTASE REACTIONS F1 AND F2 FROM WHEAT BRAN AND THE MYO-INOSITOL PHOSPHATES PRODUCED BY FRACTION F2" BIOCHIMICA ET BIOPHYSICA ACTA, AMSTERDAM, NL, vol. 302, no. 2 E43, 1973, pages 316-328, XP000972485 ISSN: 0006-3002  
D5: MULLANEY E J ET AL: "The term phytase comprises several different classes of enzymes" BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS, ACADEMIC PRESS INC. ORLANDO, FL, US, vol. 312, no. 1, 5 December 2003 (2003-12-05), pages 179-184, XP004473248 ISSN: 0006-291X  
D6: DATABASE CHEMABS [Online] CHEMICAL ABSTRACTS SERVICE, COLUMBUS, OHIO, US; 1998, PIZZOFRERATO, L. ET AL  
PIZZOFERRATO, L. ET AL: "31P NMR spectra of myo- inositol phosphates in model systems and foods 31P NMR spectra of myo- inositol phosphates in model systems and foods" XP000227293 accession no. STN Database accession no. 1998:145617  
D7: CHEN Q-C ET AL: "Separation of phytic acid and other related inositol phosphates by high-performance ion chromatography and its applications" JOURNAL OF CHROMATOGRAPHY A; ELSEVIER SCIENCE, NL, vol. 1018, no. 1, 7 November 2003 (2003-11-07), pages 41-52, XP004463107 ISSN: 0021-9673

Documents D4-D7 represent merely background literature, whereas D1-D3 are considered as being more relevant.

2). **Novelty - Art. 33(1) and (2) PCT:**

The present patent application concerns a process for producing inositol from plant material, whereby an aqueous slurry is treated with phytase to partially hydrolyse the phytate, phytic acid and phytin to inositol phosphate, but where not full hydrolysis to inositol takes place, and then separating the fractions and isolating the inositol which is not accompanied by other sugars.

D1-D3 also concern the preparation of inositol from phytate, but do have to separate the inositol from accompanied other sugars (D1), or do not produce in the presence of other sugars (D2 and D3).

None of the documents discloses the present process for the production of inositol with the claimed combination of steps.

The subject-matter of claims 1-11 is therefore new.

3). **Inventive step - Art. 33(1) and (3) PCT:**

The problem underlying the present patent application is to find a process for the preparation of inositol from plant material, where the resulting inositol is not accompanied by other neutral sugars, therefore avoiding cumbersome separation steps.

This problem has been solved with the claimed process, where only a partial hydrolysis takes place in the first step, so that the inositol phosphates can be easily separated and are not accompanied by other sugars. In a further step the phosphates are hydrolysed to inositol.

As already mentioned above, none of the prior art documents mentions this solution, which is therefore considered to involve an inventive step.

Thus, the subject-matter of claims 1-11 is inventive.

4). **Industrial applicability - Art. 33(1) and (4) PCT:**

The subject-matter of claims 1-11 is industrially applicable.